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MULTIMEDIA COMPLIANCE INVESTIGATION

Walter Coke
Birmingham, Alabama
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NEIC

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INTRODUCTION

At the request of U.S. Environmental Protection Agency (EPA) Region 4, EPA's National Enforcement Investigations Center (NEIC) conducted a focused multimedia (Clean Air Act [CAA] and Resource Conservation and Recovery Act [RCRA]) compliance investigation of the Walter Coke plant in Birmingham, Alabama. The primary focus of the NEIC investigation was Walter Coke's by-products recovery plant. NEIC conducted the on-site inspection September 7 through 14, 2011. Walter Coke's production operations and associated waste streams are subject to major environmental statutes, including the Clean Water Act (CWA), RCRA, CAA, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Its operations also are subject to the requirements of environmental permits and regulations administered by the EPA, the Alabama Department of Environmental Management (ADEM), and the Jefferson County Department of Health (JCDH).

FACILITY BACKGROUND

Walter Coke is one of the oldest industrial facilities in Birmingham, first operated as the Sloss Furnace Company in 1881. The facility produces blast furnace coke, foundry coke, egg coke, buckwheat/nut coke, light oil, coal tar, and ammonium sulfate for use in the iron and steel, agriculture, automotive, wool fiber, and plastics industries.

Walter Coke operates three coke oven batteries. Coal is placed in the batteries in the absence of air at a coking temperature of approximately 2,000 degrees Fahrenheit (°F). The coal breaks down in this destructive distillation process, creating coke oven gas (COG), which consists of hydrogen, volatile material, etc., and coke, which primarily consists of carbon. The volatile products from the coal and coal tar derivatives are recovered and separated in the coke by-products recovery plant.

ON-SITE INSPECTION SUMMARY

NEIC conducted the on-site inspection September 7 through 14, 2011. EPA Region 4, ADEM, and JCDH inspectors also participated in and/or observed the on-site inspection. During the opening conference, credentials were presented to Charles Jones, Walter Coke environmental and safety coordinator. Walter Coke representatives presented process information on raw materials, products, by-products, and wastes for the coke by-product recovery plant. NEIC inspectors also reviewed records and documents, performed a visual inspection of the facility, conducted sampling and field measurements, and interviewed plant personnel. At the conclusion of the on-site inspection, an exit meeting was held to discuss preliminary findings. NEIC personnel stated that final determinations would be made in conjunction with EPA Region 4 and state personnel.

Clean Air Act

During the CAA portion of the investigation, NEIC evaluated Walter Coke's compliance with 40 Code of Federal Regulations (CFR) Part 61, Subparts FF – National Emission Standard for Benzene Waste Operations (BWON) and L – National Emission Standards for Benzene Emissions from Coke By-Product Recovery Plants, including leak detection and repair (LDAR) provisions. Walter Coke operates a furnace coke by-product recovery plant, as that term is defined in 40 CFR § 61.131.

During the NEIC on-site inspection, a total of 546 components (including some hatches and seals) were monitored using toxic vapor analyzers (TVAs) following EPA Method 21 (40 CFR 60, Appendix A-7). The purpose of the monitoring was to determine compliance with 40 CFR 61 Subpart L, Subpart V –National Emission Standards for Equipment Leaks (which is referenced by Subpart L) and/or JCDH LDAR requirements.

NEIC inspectors conducted BWON sampling over the course of 3 days from September 12 through 14, 2011. Matthew Schneider physically collected the samples with the help of Araceli Bonilla, and Kristine Pordesimo documented the sampling activities. The NEIC laboratory in Denver, Colorado, analyzed benzene waste samples that were collected from 12 locations at the facility. The following locations were sampled:

- Light Oil Dike Sump
- Ammonia Still Effluent
- Ammonia Still Influent
- Wash Oil Decanter Liquor
- Rectifier Separator Liquor
- Light Oil Separator Liquor + Rectifier Separator Liquor (streams were combined prior to an available sample location)
- Tar Storage Tank Water Draw
- Exhauster Building Basement Sump
- Liquor from Final Cooler to Mixer/Settler Feed Tank
- Final Cooler Blowdown to Submarine Tank
- Tar from Water Settling Tank to Submarine Tank
- Muck/Oil from Muck Recovery Tank

Some of the samples were collected from potential points of waste generation that may have been overlooked by Walter Coke. In most cases, the flow rate of the stream was unknown by Walter Coke, and it was not possible to conduct a material balance to estimate a flow rate. In addition, because Walter Coke did not have a method of cooling the streams (e.g., a cooling coil), many of the samples were collected from hot process streams without cooling; the benzene concentration present in the process stream is likely higher than the NEIC analytical results due to vaporization of benzene during sampling (the boiling point of benzene is approximately 176

^{o}F). The purpose of collecting the samples was to determine if benzene was present (and at what approximate concentration) at each of the potential individual points of generation.

Aqueous samples were collected in 40-milliliter (mL) glass vials preserved with hydrochloric acid, and organic-phase samples were collected unpreserved in 20-mL glass vials. Walter Coke representatives collected co-located samples from the same sampling stations using their own sample vials. The aqueous and organic-phase samples, collected by NEIC, were immediately placed on ice in separate coolers. During each day of sampling activities, the coolers containing the collected samples were in the possession of NEIC inspectors at all times. Each evening, the collected samples were processed by affixing a completed sample tag to each sample vial and then placing the sample vials into plastic evidence bags with tamper-evident seals. On September 12, 2011, one locked ice chest containing aqueous samples and one locked ice chest containing organic-phase samples were shipped to the NEIC laboratory for analysis. On September 14, 2011, additional ice chests containing the remaining samples were shipped to the NEIC laboratory. The samples were received by NEIC chemists Angie Hunter and Jon Beihoffer.

Resource Conservation and Recovery Act

Walter Coke is a large quantity generator (greater than 1,000 kilograms of hazardous waste generated each month), operating under RCRA identification No. ALD000828848. Walter Coke has also notified as a small quantity handler of universal wastes. During the NEIC on-site inspection, the following areas associated with the RCRA inspection were visually inspected: No. 1 pad, including the aerosol can puncturing drum and used oil storage containers, less-than-90-day hazardous waste accumulation area (Pilot Plant Pad), universal waste storage area (AC Building), wastewater treatment plant (Biological Treatment Facility), construction debris landfill, and used lithium battery collection area. Records reviewed included: manifests and associated land disposal restriction notifications, training plan and training documentation, groundwater monitoring analytical results for groundwater at the former Walter Coke Arichem facility (Arichem) located in Ariton, Alabama, and sampled and measured parameters for the operation of the Biological Treatment Facility.

Jacob Stowell collected a sample of the wastewater discharging into the emergency basin from the drain located on the west side of the coke oven batteries. Six 8-ounce glass jars were filled using a plastic dipper cup on the end of an extension pole. Dipper cup 1 was split into jars A and B. Dipper cup 2 was split into jars C and D. Dipper cup 3 was split into jars E and F. Tom McCorkle, EnerSolv Corporation, selected jars A, B, and D as Walter Coke's split sample. The NEIC jars were tagged and packaged in tamper-evident bags. The sample was delivered to the EPA Region 4 Science and Ecosystem Support Division (SESD) laboratory located in Athens, Georgia.

The EPA Region 4 SESD laboratory analyzed the sample using the toxicity characteristic leaching procedure (TCLP) for volatiles, semi-volatiles, metals, and pesticides. Based on the SESD's laboratory analytical results, the sample of wastewater being discharged into the emergency basin on September 9, 2011 did not exhibit the hazardous waste characteristic of toxicity.

SUMMARY OF FINDINGS

Findings identified by NEIC during the Walter Coke multimedia investigation are summarized in the table of findings below. These findings can be categorized as either areas of potential noncompliance or areas of concern. Areas of concern are inspection observations of potential problems or activities that could impact the environment, result in future or current noncompliance, and/or are associated with pollution prevention.

TABLE OF FINDINGS
Multimedia Investigation
Walter Coke, Birmingham, Alabama

#	Regulatory Citation	Findings
	CLEAN AIR ACT (CAA)	
	AREAS OF POTENTIAL NONCOMPLIANCE – CAA	
	40 CFR 61 Subpart L – National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants	
1.	**40 CFR § 61.135(c) –** *Each piece of equipment in benzene service to which this subpart applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment in benzene service.* **40 CFR § 61.131 – Definitions** – *Equipment means each pump, valve, exhauster, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in benzene service.* **40 CFR § 61.131 – Definitions –** *In benzene service means a piece of equipment, other than an exhauster, that either contains or contacts a fluid (liquid or gas) that is at least 10 percent benzene by weight…*	Upon review of Walter Coke's 2011 master LDAR equipment list, NEIC observed that one tag number is used to identify multiple components. In some cases, five to nine valves and many connectors are associated with a single tag number. A piece of equipment marked with a black tag at Walter Coke indicates that it is in benzene service. A piece marked with a blue tag is in volatile organic compound (VOC) gas service, and a piece marked with a red tag is in VOC liquid service. According to the 2011 LDAR master equipment list, Walter Coke has 130 black tags and 1,563 components in benzene service. Based on the information in the master equipment list, NEIC identified 1,433 pieces of equipment in benzene service that are not marked such that they can be distinguished readily from other pieces of equipment in benzene service.
2.	**40 CFR § 61.132(a)(2)** – *The owner or operator shall duct gases from each process vessel, tar storage tank, and tar-intercepting sump to the gas collection system, gas*	According to Walter Coke environmental staff, the facility monitors and repairs connections and seals of the control equipment on process vessels and tanks if a leak is observed at 10,000 parts per million (ppm) or greater. No detectable emissions are described as instrument readings of less than 500 ppm. Other than pressure relief devices (PRDs), Walter Coke did not record instrument readings other than those for

#	Regulatory Citation	Findings
	distribution system, or other enclosed point in the by-product recovery process… This control system shall be designed and operated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background… **40 CFR § 61.131 – Definitions** *Process vessel means each tar decanter, flushing-liquor circulation tank, light oil condenser, light-oil decanter, wash-oil decanter, or wash-oil circulation tank.* *Tar storage tank means any vessel, tank, reservoir, or other type of container used to collect or store crude tar or tar-entrained naphthalene…This definition includes any vessel, tank, reservoir, or container used to reduce the water content of the tar by means of heat, residence time, chemical emulsion breakers, or centrifugal separation. A tar storage tank may also be known as a tar-dewatering tank.* **40 CFR § 61.132(b) –** *Following the installation of any control equipment used to meet the requirements of paragraph (a) of this section, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 and the procedures specified in §61.245(c), and shall visually inspect each source (including sealing materials) and the ductwork of the control system for evidence of visible defects such as gaps and tears. This monitoring and inspection shall be conducted on a semiannual basis and at any other time after the control system is repressurized with blanketing gas following removal of the cover or opening of the access hatch.* **(b)(1) -** *If an instrument reading indicates an organic chemical concentration more*	which readings above 10,000 ppm were observed. NEIC observed that Walter Coke is not determining if connections and seals of the control equipment on the following process vessels are operating with no detectable emissions: No. 3/4 tar decanter, No. 5 tar decanter, No. 3/4 BH tank (flushing-liquor circulation tank), No. 5 BH tank, light oil condenser, light oil separator/decanter, and wash oil decanter. Additionally, NEIC observed that Walter Coke is not determining if connections and seals of the control equipment on the following tanks are operating with no detectable emissions: tar storage tanks, enriched tar storage tank, low tank (tar-intercepting sump), light oil storage tanks, and weak ammonia liquor tanks (excess ammonia liquor storage tanks). Unlike the connections and seals of the control equipment on the vessels described above, Walter Coke has chosen to repair PRDs if an instrument reading of 500 ppm is observed. However, some of the storage vessels are equipped with explosion vents, which Walter Coke does not consider to be pressure relief devices. Therefore, Walter Coke assigned a 10,000 ppm leak definition to these types of equipment. Explosion vents appear to serve the same purpose as PRDs (but are designed to release at a higher pressure set point) and were observed by NEIC on the light oil storage tanks (4) and the weak ammonia liquor tanks (2).

#	Regulatory Citation	Findings
	than 500 ppm above a background concentration, as measured by Method 21, a leak is detected. **40 CFR § 61.132(d)** – *Each owner or operator of a furnace coke by-product plant also shall comply with the requirements of paragraphs (a)-(c) of this section for each benzene storage tank, BTX storage tank, light-oil storage tank, and excess ammonia-liquor storage tank.*	
3.	**40 CFR § 61.133(a) –** *Each owner or operator of a light-oil sump shall enclose and seal the liquid surface in the sump to form a closed system to contain the emissions.* **(a)(2) –** *Except, the owner or operator may elect to install, operate, and maintain an access hatch on each light-oil sump cover. Each access hatch must be equipped with a gasket and a cover, seal, or lid that must be kept in a closed position at all times, unless in actual use.* **40 CFR § 61.131 – Definitions –** *Light-oil sump means any tank, pit, enclosure, or slop tank in light-oil recovery operations that functions as a wastewater separation device for hydrocarbon liquids on the surface of the water.* **40 CFR § 61.133(c) –** *Following the installation of any control equipment used to meet the requirements of paragraph (a) of this section, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 and the procedures specified in §61.245(c), and shall visually inspect each source (including sealing materials) for evidence of visible defects such as gaps and tears. This monitoring and inspection shall be conducted semiannually and at any other*	Walter Coke operates a light-oil sump, which is called the "muck tank." The access hatches on the muck tank are monitored by Walter Coke with a leak definition of 10,000 ppm; however, the requirement is a leak definition of 500 ppm. NEIC observed that Walter Coke is not determining that the control equipment on the light-oil sump is operating with no detectable emissions. EPA Region 4 inspectors Nicole Radford and Stephen Rieck used NEIC's GasFindIR infrared camera to record infrared videos of the leaks from the PRD and an access hatch on the muck tank. Walter Coke LDAR contractor Lance Barnett proceeded to monitor the observed leaks using a toxic vapor analyzer; the instrument "flamed out," which indicates a reading much higher than 10,000 ppm.

<table>
<tr><th>#</th><th>Regulatory Citation</th><th>Findings</th></tr>
<tr><td></td><td>time the cover is removed.

(c)(1) If an instrument reading indicates an organic chemical concentration more than 500 ppm above background concentration, as measured by Method 21, a leak is detected.</td><td></td></tr>
<tr><td>4.</td><td>40 CFR § 61.132(b) – Following the installation of any control equipment used to meet the requirements of paragraph (a) of this section, the owner or operator shall monitor the connections and seals on each control system to determine if it is operating with no detectable emissions, using Method 21 and the procedures specified in §61.245(c), and shall visually inspect each source (including sealing materials) and the ductwork of the control system for evidence of visible defects such as gaps and tears. This monitoring and inspection shall be conducted on a semiannual basis and at any other time after the control system is repressurized with blanketing gas following removal of the cover or opening of the access hatch.

(b)(3) – When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected.

40 CFR § 61.132(d) – Each owner or operator of a furnace coke by-product recovery plant also shall comply with the requirements of paragraphs (a)-(c) of this section for each benzene storage tank, BTX storage tank, light-oil storage tank, and excess ammonia-liquor storage tank.

40 CFR § 61.135(a) – Each owner or operator of equipment in benzene service shall comply with the requirements of 40 CFR part 61, subpart V…

40 CFR § 61.135(d) – Each exhauster shall be monitored quarterly to detect leaks by the</td><td>NEIC reviewed monitoring data from July 2008 through June 2011. The data shows that Walter Coke did not complete repairs within 15 calendar days after leaks were detected on the following components:

<table><tr><th>Date of Initial Leak</th><th>Tag No.</th><th>Description of Equipment</th><th>Initial leak Reading</th><th>Final Repair Date</th></tr><tr><td>7/31/2008</td><td>Black 749</td><td>Vent on top of T-16</td><td>1.91%</td><td>8/22/2008</td></tr><tr><td>3/8/2010</td><td>Black 803</td><td>#2 exhauster</td><td>1.07%</td><td>4/7/2010</td></tr><tr><td>4/28/2010</td><td>Black 758</td><td>Vent on top of T-15</td><td>1.62%</td><td>5/16/2010</td></tr><tr><td>6/16/2010</td><td>Black 760</td><td>PRD on top of T-16</td><td>5.23%</td><td>7/3/2010</td></tr></table>
Equipment associated with black tag Nos. 749, 758, and 760 are either part of a closed-vent system or are part of the control equipment on light-oil storage vessels, but it is unclear whether the pieces of equipment found to be leaking are part of a closed-vent system or are part of control equipment installed on the light-oil storage vessels (T-15 and T-16 are light-oil storage vessels). However, both types of equipment have the same requirement for leaks to be repaired within 15 calendar days of detection.

The descriptions of leaking equipment tabulated above were from handwritten LDAR monitoring and repair records. However, Walter Coke’s 2011 LDAR master equipment list describes black tag No. 749 as “T-16 Light Oil Storage Tank top” with two flanges and four welded connections. Black tag No. 758 is described as “Light Oil Injection Line to Final Cooler Circulation Pumps” with one flange. Black tag No. 760 is described as “Light Oil Injection Line to Final Cooler Circulation Pumps” with one valve, one flange, and two welded connections.</td></tr>
</table>

#	Regulatory Citation	Findings
	methods specified in § 61.245 9(b)… **(d)(1)** *If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.* **(d)(2)** *When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after it is detected…* **40 CFR § 61.242-11 Closed-vent systems and control devices** **(g)** *Leaks, as indicated by an instrument reading greater than 500 parts per million by volume above background or by visual inspections, shall be repaired as soon as practicable...***(2)** *Repair shall be completed no later than 15 calendar days after the leak is detected...*	
5.	**40 CFR § 61.134(a) –** *No ("zero") emissions are allowed from naphthalene processing, final coolers and final-cooler cooling towers at coke by-product recovery plants.*	NEIC detected a leak of 517 ppm on a valve (tag No. 362) on the outlet of the final cooler, which was confirmed by Walter Coke. Upon observation, Walter Coke personnel repacked the valve; a remonitoring of the valve showed no detectable emissions. This observation was made on September 9, 2011. The 2011 LDAR master equipment list describes tag No. 362 as equipment associated with the Cottrell inlet, which is not a piece of equipment located immediately following the final cooler. It appears that the 2011 LDAR master equipment list is incorrect. Walter Coke operates two final coolers. Only one is in operation at any one time, while the other is a backup to be used while periodic maintenance is performed. The final cooler that was not in use has a drain line from the bottom of the vessel that would drain the contents of the final cooler into an open funnel before maintenance activities are performed. The opening at the end of the drain line had a TVA reading of 800 ppm. Walter Coke personnel confirmed it was leaking at 1,300 ppm. This reading was taken on September 8, 2011.
6.	**40 CFR § 61.242-6(a)(1)** – *Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve…* **(a)(2)***The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.* **JCDH Rules and Regulations – 8.26.7 Open Ended Valves**. **(a)** *Each open-ended valve shall be equipped with a cap, blind flange, plug, or a second valve, except during operations requiring fluid flow*	NEIC identified a total of nine open-ended lines at Walter Coke. The open-ended lines include missing plugs, single valves without a cap, or missing secondary closed valves on a section of pipe. Each open line that was observed was brought to the attention of Walter Coke personnel. The open-ended lines are listed below with an associated area of the plant. • 1 missing plug near tag No. 821 in wash oil purifier area • 1 missing plug near tag No. 201 on exhauster gas suction main • 1 missing blind flange, or second valve near large valve tag No. 385 on the final cooler bottom • 1 missing plug near tag No. 512 in light oil processing area • 1 missing plug near tag No. 516 in light oil processing area • 2 missing plugs near tag No. 199 in exhauster building • 2 missing plugs near tag No. 469 in #2 pump house

#	Regulatory Citation	Findings
	through the open-ended valve.	
	40 CFR 61 Subpart FF – National Emission Standard for Benzene Waste Operations (BWON)	
7.	**40 CFR § 61.355(a)** – *An owner or operator shall determine the total annual benzene quantity from facility waste by the following procedure:* **(b)** *For purposes of the calculation required by paragraph (a) of this section, an owner or operator shall determine the annual waste quantity at the point of waste generation, unless otherwise provided in paragraphs (b)(1), (2), (3), and (4) of this section, by one of the methods given in paragraphs (b)(5) through (7) of this section.* **(2)** *The determination of annual waste quantity for waste at coke by-product plants subject to and complying with the control requirements of §61.132, 61.133, 61.134 or 61.139 of subpart L of this part shall be made at the location that the waste stream exits the process unit component or waste management unit controlled by that subpart or at the exit of the ammonia still, provided that the following conditions are met:* **(2)(i)** *The transfer of wastes between units complying with the control requirements of subpart L of this part, process units, and the ammonia still is made through hard piping or other enclosed system.* **(2)(ii)** *The ammonia still meets the definition of a sour water stripper in §61.341.* **40 CFR § 61.341 Definitions –** *Point of waste generation means the location where the waste stream exits the process unit component or storage tank prior to handling or treatment in an operation that is not an integral part of the production process, or in the case of waste management units that*	Based on the operation of the coke by-products plant, it appears that Walter Coke did not determine the total annual benzene (TAB) quantity at all of the appropriate locations. Generally, Walter Coke determined the TAB quantity from benzene contributions from the outlet of the ammonia still, various drip pots throughout the process, sludge removed from the tar decanters, and other coke plant-derived miscellaneous material. NEIC identified additional streams that are likely required to be included in the TAB calculation: • Liquor from wash oil decanter into open weir • Liquor from the rectifier separator into muck tank • Liquor from the light-oil separator into muck tank • Final cooler blowdown to submarine tank • Tar from water settling tank to submarine tank • Additional intermittent streams sent to the submarine tank • Flow into the light-oil dike sump Each of these streams drain into units that NEIC identified as either not meeting the control requirements in 40 CFR §61.132 or 61.133, are not hard-piped or otherwise enclosed prior to the ammonia stills, or are not subject to the control requirements of 40 CFR §§ 61.132, 61.133, 61.134, or 61.139 of Subpart L. The muck tank, which is a light-oil sump that receives aqueous streams listed above, has not historically been monitored using a 500 ppm leak definition and, therefore, was not operated in compliance with 40 CFR §61.133(c)(1). Consequently, appropriate points of waste generation include the streams entering the muck tank (see finding 3). NEIC traced the aqueous (liquor) streams from each vessel to the ammonia still and observed that the liquor from the wash oil decanter is not hard-piped to the ammonia still – it flows through a weir that is open to the atmosphere. Therefore, the wash oil decanter liquor stream is an appropriate point of waste generation. In addition, this stream is sent to the muck tank. The submarine tank does not appear to meet the definition of process vessel, storage tank, tar-intercepting sump, or light-oil sump given in 40 CFR § 61.131 and, therefore, cannot receive the exemption in 40 CFR § 61.355(b)(2). In addition, this vessel receives wastes that are greater than 10 percent water (or had been mixed with other waste and previously contained more than 10 percent water) and does not appear to be integral to the production process. Although not described in the process description report, according to the by-product system presentation presented by Walter Coke, the submarine tank receives additional intermittent waste flows from the following locations: • Mixer settler pumping tank • Mixer settler feed tank • Mixer settler blow-down

#	Regulatory Citation	Findings
	generate new wastes after treatment, the location where the waste stream exits the waste management unit component.	• The bottom of the wash oil absorbers (LBAs) • Any contact water drained from the tar storage tanks • The gas condensate wagon • The mixer settler area gas seals • Containment area wash water NEIC observed elevated readings with the TVA (200 ppm) above a sump located in the light-oil processing area. Walter Coke personnel called this the "light-oil dike sump." Walter Coke personnel were unable to describe where the observed flow into the sump originated; however, Walter Coke representatives Ron Schoen and Mike Campbell did not believe any benzene should be present. NEIC laboratory results show that some benzene was present in samples collected from the light-oil dike sump (average benzene concentration 0.577 mg/L). The samples that were collected by NEIC were at an elevated temperature (approximately 185 °F) and had been exposed to the atmosphere; therefore, the actual benzene concentration entering the sump would be expected to be higher than what was present in the samples. Liquor from the final cooler to mixer/settler feed tank is also a potential point of waste generation; however, there is not enough information to determine whether this vessel is an integral part of the production process. Walter Coke has been reporting a facility-wide TAB quantity of less than 1 megagram (Mg) per year. Because flow rate information is not collected at suspected points of waste generation, the facility's TAB quantity cannot be calculated. However, it appears that Walter Coke's actual TAB quantity has the potential to be (or has historically been) greater than 10 Mg per year. If the facility's TAB quantity is greater than 10, Walter Coke would be required to recalculate the TAB quantity once per year and choose a compliance option, as described in 40 CFR § 61.342(c), (d), or (e). In addition to the chosen compliance option (which allows Walter Coke to exempt certain waste streams from control), specific control requirements are required for tanks, surface impoundments, containers, individual drain systems, oil-water separators, treatment processes, and closed-vent systems and control devices. These requirements generally include monitoring (leak definition 500 ppm) and periodic visual inspections.
8.	**40 CFR § 61.355(c)(3) –** *Measurements of the benzene concentration in the waste stream in accordance with the following procedure.* **(c)(3)(i) –** *Collect a minimum of three representative samples from each waste stream. Where feasible, samples shall be taken from an enclosed pipe prior to the waste being exposed to the atmosphere.* **(c)(3)(ii)** *– For waste in enclosed pipes, the*	Walter Coke believes that the outlet of the ammonia stripper is one of the locations required to be sampled to determine the facility's TAB quantity. NEIC measured the temperature of the water stream exiting the ammonia still at approximately 205 ^{o}F. Walter Coke does not cool the sample to less than 50 ^{o}F when it conducts its TAB analysis (performed annually by the facility as required in the facility's Title V CAA permit). The requirement to cool samples would also apply to any additional sample locations that are required by Subpart FF.

#	Regulatory Citation	Findings
	following procedure shall be used: **(c)(3)(ii)(F) –** *Samples shall be collected at a flow rate such that the cooling coil is able to maintain a waste temperature less than 50 ^{o}F.*	
	Jefferson County Department of Health, Air Pollution Control Rules and Regulations Section 8.26 – Leaks from Coke By-Products Recovery Plant Equipment	
9.	**JCDH Rules and Regulations – 8.26.3 General Requirements** – *Any component in VOC service that appears to be leaking on the basis of sight, smell, or sound, shall be repaired with an initial attempt as soon as possible and final repair within 15 calendar days.* **8.26.5 Valves in Gas and Light Liquid Service** **(b)** *If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.* **(c)** *When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.* **8.26.6 Pressure Relief Valves in Gas Service** **(b)** *If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.* **(c)** *When a leak is detected, excluding overpressure releases, it shall be repaired as soon as practicable, but no later than 15 calendar days after it is detected.*	According to Walter Coke environmental staff, the facility denotes components in VOC gas service with blue tags and components in VOC liquid service with red tags. NEIC identified the following 34 occurrences for which Walter Coke did not complete repairs within 15 calendar days after a leak was detected. Because multiple pieces of equipment are associated with a single tag number (see finding 1) and tag numbers were not consistently recorded with the associated VOC component, identification of the specific component and type of component was not possible in all circumstances. Walter Coke recorded a green tag number on May 3, 2010. The facility only uses green tags to identify leaking components; green tags are not on Walter Coke's master equipment list. It should be noted that equipment in benzene service (identified by black tags) are also in VOC service and, therefore, subject to this requirement as well (see finding 4). **Components not Repaired Within 15 Calendar Days** **Date of Initial Leak** / **Tag No.** / **Description of Equipment** / **Initial Leak Reading (ppm)** / **Final Repair Date** 7/31/2008 / Red 549 / Pipe leaking between still and purifier / Visual / 8/22/2008 7/31/2008 / Blue 239 / PRD and manhole cover on T-26 / 2.62% / 8/22/2008 9/10/2008 / Not recorded / Drain pipe from T62 on ground / 2.25% / Between 9/25/2008 and 10/9/2008 9/8/2008 / Not recorded / Valve in exhauster bldg. above and between #3 compressor and "big mama" / Visual / Between 9/23/2008 and 10/8/2008 9/10/2008 / Not recorded / Drain pipe from T62 on ground / 2.25% / Between 9/25/2008 and 10/9/2008 9/10/2008 / Not recorded / Hole in side near top of T48 LBA / Visual / Between 9/25/2008 and 10/9/2008 9/11/2008 / Blue 247 / Manhole top of T28 / 2.02% / Between 9/25/2008 and 10/9/2008 11/17/2008 / Not recorded / #1 compressor / 1.75% / Between 12/2/2008 and 12/15/2008 12/16/2008 / Blue 247 / mMnhole top of T28 / 4.32% / Between

#	Regulatory Citation	Findings				
						12/30/2008 and 1/13/2009
		12/18/2008	Not recorded	#5 decanter open to the atmosphere	Visual	Between 1/2/2009 and 1/15/2009
		12/18/2008	Not recorded	T103 leaks around manhole	2.40%	Between 1/2/2009 and 1/15/2009
		1/27/2009	Blue 278	#3 compressor	4995	2/24/2009
		1/27/2009	Not recorded	T-36 inlet flange	4.04%	2/13/2009
		1/30/2009	Blue 130	PRD top of T-23 tar tank	4167	2/24/2009
		1/30/2009	Blue 296	PRD above T-103	1680	2/16/2009
		6/16/2009	Blue 118	T-40 Cottrell valve	2.14%	8/18/2009
		8/11/2009	Red 394	T-48 rectangular flange 7th level (visual)	Visual	9/10/2009
		8/12/2009	Red 323	Valve at #3 circulating pump at LBA's	Visual	9/14/2009
		8/24/2009	Blue 239	Manhole top of T-26	4.81%	9/10/2009
		8/24/2009	Not recorded	Manhole and PRD top of T-30	1.31%	9/10/2009
		10/23/2009	Not recorded	Holes around manhole top of T-33 #5 BH tank	1.55%	11/11/2009
		11/4/2009	Not recorded	Patch hole on downcomer	1.45%	12/7/2009
		11/5/2009	Not recorded	Valve at/near T-27	Visual	12/6/2009
		11/9/2009	Not recorded	T-39 #3 Cottrell has holes on bottom/side	4.22%	Between 11/24/2009 and 12/9/2009
		11/9/2009	Red 366	Seal leaking valve bottom of T-47 final cooler	1.22%	Between 11/24/2009 and 12/9/2009
		11/20/2009	Red 499	Valve at T-30 muck tank	Visual	12/6/2009
		3/17/2010	Blue 231	Flange top of T-30 muck tank	2.61%	4/2/2010
		3/17/2010	Blue 90	Vent top of T-23 tar tank	1.62%	4/2/2010
		4/8/2010	Not recorded	Repatch hole gas line northeast corner #2 pumphouse	1.27%	Between 4/23/2010 and 4/27/2010
		4/14/2010	Not recorded	#3 blending station at boilers	2.14%	Between 4/29/2010 and 4/30/2010
		4/28/2010	Blue 90	Vent top of T-23 tar tank	1.03%	5/15/2010
		4/28/2010	Blue 91	Vent top of T-24 tar tank	1.56%	5/15/2010
		5/3/2010	Green 23	Connection top of T-50 downcomer	1.06%	Between 5/31/2010 and 6/14/2010

#	Regulatory Citation	Findings

		5/19/2010	Blue 123	Valve at T-38 #4 Cottrell outlet	2.23%	Between 5/31/2010 and 6/15/2010

10. **JCDH Rules and Regulations – 8.26.10 Recordkeeping Requirements**

Owners or operators of coke by-product recovery plants shall maintain monitoring records for all components subject to the requirements of this Part. This log shall contain at a minimum the following data: … (3) The identification number of the component, (4) The date on which a leaking component is discovered, initial repair attempted, and the component is repaired, (5) The date and instrument reading of the recheck monitoring after a leaking component is repaired, (6) A record of calibration of the monitoring instrument…

Upon NEIC's review of monitoring records, it appears that Walter Coke failed to consistently record tag numbers (identification numbers) of leaking components, failed to consistently record the date of recheck monitoring, and failed to consistently record a final date of repair of leaking equipment. Some records of leaking equipment were missing multiple elements of required documentation. Walter Coke also conducted monitoring on days for which there was no record of instrument calibration.

NEIC identified the following 79 occurrences in which Walter Coke failed to record the identification number of the component in its monitoring records:

Components with No Record of Identification Number

Date of Initial Leak	Tag No.	Initial Leak Reading (ppm)	Description of Equipment
7/29/2008	Not recorded	1.83%	Final decanter hole on top @ incline
7/29/2008	Not recorded	Visual	Flange on top of T-45 (visual)
7/29/2008	Not recorded	1.03%	#1 exhauster
7/29/2008	Not recorded	1.93%	Cottrell flange below inlet valve
7/29/2008	Not recorded	Visual	Light oil wash oil pump gauge weld hole
8/22/2008	Not recorded	2.40%	Top hatch on incline T35
9/8/2008	Not recorded	Visual	Hole in top of T45 flange
9/8/2008	Not recorded	Visual	Valve in exhauster bldg. above and between #3 compressor and "big mama"
9/8/2008	Not recorded	1.28%	#2 exhauster
9/9/2008	Not recorded	1.29%	Valve @ T36 outlet
9/9/2008	Not recorded	1.98%	Valve at T36 inlet
9/10/2008	Not recorded	Visual	Hole in side of T33 on existing patch
9/10/2008	Not recorded	2.25%	Drain pipe from T62 on ground
9/10/2008	Not recorded	Visual	Hole in side near top of T48 LBA

#	Regulatory Citation	Findings				
			10/6/2008	Not recorded	3.33%	#3compressor
			10/21/2008	Not recorded	1.33%	Drain from T62@T48 (1.33%)
			11/17/2008	Not recorded	1.85%	Leak on end of incline top of T18
			11/17/2008	Not recorded	1.75%	#1 compressor
			11/25/2008	Not recorded	5963	PRD top of T1B mixer/settler
			12/18/2008	Not recorded	2200	PRD on low tank
			12/18/2008	Not recorded	Visual	Low tank manhole where pump connects
			12/18/2008	Not recorded	Visual	Hole in lower side of T38
			12/18/2008	Not recorded	1.20%	Hole in top flange T38 by ladder
			12/18/2008	Not recorded	Visual	Lots of visible leaks on gas main suction side
			12/18/2008	Not recorded	Visual	T35 incline on backside has visible leaks
			12/18/2008	Not recorded	Visual	#5 decanter open to the atmosphere
			12/18/2008	Not recorded	Visual	T103 leaks around manhole
			12/18/2008	Not recorded	Visual	Hole in gas line above #3 exhauster
			12/18/2008	Not recorded	2.40%	#3 compressor
			1/27/2009	Not recorded	4.04%	T-36 inlet flange
			1/29/2009	Not recorded	4.24%	Manhole on top of T-30 muck tank
			1/30/2009	Not recorded	1.15%	Vent top of T-24
			1/30/2009	Not recorded	2.16%	T-103 leaks around manhole
			2/9/2009	Not recorded	4458	PRD on low tank
			2/9/2009	Not recorded	Visual	Flange T-48 6th level
			2/24/2009	Not recorded	1.97%	T-38 flange top by ladder
			2/24/2009	Not recorded	2.13%	#2 compressor
			4/21/2009	Not recorded	2.37%	Small valve at big holder by vent and yellow cylinder
			4/21/2009	Not recorded	1.23%	#2 exhauster

#	Regulatory Citation	Findings				
			4/21/2009	Not recorded	1.42%	Hole on top of T-63 final decanter next to incline
			6/8/2009	Not recorded	Visual	Flange at T-48 LBA 7th level
			6/8/2009	Not recorded	1.21%	T-63 final decanter hole top/right side of incline
			6/16/2009	Not recorded	1.60%	#1 compressor
			6/16/2009	Not recorded	1.31%	#2 compressor
			6/18/2009	Not recorded	1.71%	PRD top of T-1A mixer settler
			6/19/2009	Not recorded	1176	PRD top of T-23 tar tank
			6/19/2009	Not recorded	5248	PRD top of T-24
			6/28/2009	Not recorded	2570	PRD top of T-23
			6/28/2009	Not recorded	1.64%	PRD top of T-1A mixer settler
			7/14/2009	Not recorded	1.40%	#2 compressor 1.R.
			7/14/2009	Not recorded	1.65%	#3 compressor 1.R.
			8/10/2009	Not recorded	1.31%	#2 compressor
			8/12/2009	Not recorded	2.07%	T-63 final decanter reseal access hatch top of incline
			8/13/2009	Not recorded	Visual	T-39 Cottrell holes on side
			8/13/2009	Not recorded	No reading recorded	T-33 #5 BH tank has a hole on top beside manhole, below grating
			8/24/2009	Not recorded	1.31%	Manhole and PRD top of T-30
			10/6/2009	Not recorded	1.10%	#3 compressor
			10/8/2009	Not recorded	Visual	T-39 #3 Cottrell hole on side by platform
			10/9/2009	Not recorded	1.21%	T-63 final decanter has holes on top, midde sides and lower parts of incline
			10/19/2009	Not recorded	1.20%	Welded connection top of T-50 final cooler downcomer
			10/19/2009	Not recorded	1.86%	Vent top of T-24 tar tank
			10/21/2009	Not recorded	Visual	Valve at/near T-27
			10/21/2009	Not recorded	Visual	Pipe to muck tuck at/near T-27

#	Regulatory Citation	Findings

10/23/2009	Not recorded	1.55%	Holes around manhole top of T-33 #5 BH tank
11/4/2009	Not recorded	1.45%	Patch hole on downcomer
11/4/2009	not recorded	2.57%	#2 exhauster
11/5/2009	not recorded	visual	Valve at/near T-27
11/9/2009	Not recorded	1.26%	T-39 #3 Cottrell hole at mid level platform by outer ear
11/9/2009	Not recorded	4.22%	T-39 #3 Cottrell has holes on bottom/side
12/4/2009	Not recorded	2.49%	Welded connection top of T-50 final cooler downcomer
12/4/2009	Not recorded	visual	Valve at/near T-27
1/12/2010	Not recorded	1.62%	#3 compressor leaking
1/14/2010	Not recorded	1.82%	T-63 final decanter holes on incline
1/26/2010	Not recorded	3.24%	Leaks beneath covering top of T-24
2/8/2010	Not recorded, wrote "C1" in monitoring records	2.06%	#1 compressor 1.R.
2/8/2010	Not recorded - wrote "C2" in monitoring records	3.78%	#2 compressor 1.R.
3/15/2010	Not recorded	Visual	T-40 #2 Cottrell has holes on side
4/8/2010	Not recorded	1.27%	Repatch hole gas line northeast corner #2 pumphouse
4/14/2010	Not recorded	2.14%	#3 blending station at boilers

NEIC identified 27 occurrences in which Walter Coke did not record the instrument reading of a recheck monitoring after a leaking component (in VOC service) was repaired.

Components with No Record of Recheck Monitoring

Date of Initial	Tag No.	Description of Equipment

#	Regulatory Citation	Findings

Leak		
6/19/2009	Blue 131	Vent on top of T-24
6/28/2009	Blue 99	PRD on top of #2 pumphouse
10/20/2009	Black 764	Repatch elbow joint on top of T-16
10/22/2009	Blue 25	PRD on top of T-66 weak ammonia liquor tank
12/21/2009	Blue 90	Vent on top of T-23
12/29/2009	Blue 264	PRD on top of T-53 mixer settler
12/29/2009	Blue 238	Manhole flange top of T-30 muck tank
12/29/2009	Blue 239	Manhole on top of T-26
1/25/2010	Blue 99	PRD on top of #2 pumphouse
1/25/2010	Blue 119	Welded connection on top of T-40 #2 Cottrell outer ear
1/26/2010	Blue 91	Vent on top of T-24
1/26/2010	Blue 253	PRD on top of T-23
1/28/2010	Red 487	Valve above #10 wash oil pump in light oil
3/17/2010	Blue 239	Access hatch on top of T-26 manhole
6/1/2010	Black 803	#2 exhauster
6/18/2010	Blue 124	T-37 #2 Cottrell inlet valve
11/9/2010	Blue 231	T-33 #5 BH tank manhole
11/25/2010	Blue 264	PRD on top of T-53
1/30/2009	Not recorded	Vent on top of T-24
1/30/2009	Not recorded	T-103 leaks around manhole
6/28/2009	Not recorded	Vent on top of T-23
6/28/2009	Not recorded	PRD on top of T-1A mixer settler
10/19/2009	Not recorded	Welded connection on top of T-50 final cooler downcomer
10/19/2009	Not recorded	Vent on top of T-24
10/21/2009	Not recorded	Valve at/near T-27
10/21/2009	Not recorded	Pipe to muck tank at/near T-27
1/26/2010	Not recorded	Leaks beneath covering on top of T-24

NEIC identified 26 occurrences in which Walter Coke did not record the final date of repair. Additionally, Walter Coke did not record the tag number for 17 of these occurrences.

Components with No Record of Final Repair Date

Date of Initial Leak	Tag No.	Description of

#	Regulatory Citation	Findings			
					Equipment
			7/29/2008	Not recorded	Flange on top of T-45
			8/22/2008	Not recorded	Top hatch on incline T35
			9/8/2008	Not recorded	Hole in top of T45 flange
			12/18/2008	Not recorded	Lots of visible leaks on gas main suction side
			4/21/2009	Not recorded	#2 exhauster
			4/21/2009	Not recorded	Hole on top of T-63 final decanter next to incline
			6/8/2009	Not recorded	Flange at T-48 LBA 7th level
			6/8/2009	Not recorded	T-63 final decanter hole top/right side of incline
			6/16/2009	Not recorded	#2 compressor
			6/18/2009	Not recorded	PRD on top of T-1A mixer settler
			6/19/2009	Not recorded	PRD on top of T-23 tar tank
			8/13/2009	Not recorded	T-33 #5 BH tank has a hole on top beside manhole, below grating
			10/8/2009	Not recorded	T-39 #3 Cottrell hole on side by platform
			10/9/2009	Not recorded	T-63 final decanter has holes on top, middle sides and lower parts of incline
			12/4/2009	Not recorded	Valve at/near T-27
			1/12/2010	Not recorded	#3 compressor leaking
			1/14/2010	Not recorded	T-63 final decanter holes on incline
			11/4/2009	Blue 91	Vent top of T-24 tar tank
			12/4/2009	Blue 91	Vent top of T-24 tar tank
			12/15/2009	Blue 160	Valve on #2 compressor
			1/12/2010	Black 803	#2 exhauster leaking
			1/14/2010	Blue 239	Manhole on top of T-26

<table>
<tr><th>#</th><th>Regulatory Citation</th><th>Findings</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>1/23/2010</td><td>Blue 264</td><td>PRD on top of T-53 mixer settler</td></tr>
<tr><td>3/8/2010</td><td>Red 318</td><td>#1 pump at LBA discharge, leaking valve or line</td></tr>
<tr><td>3/8/2010</td><td>Red 427</td><td>Valve at T-49 2nd level</td></tr>
<tr><td>6/21/2010</td><td>Black 803</td><td>#2 exhauster</td></tr>
</table>

Upon review of Walter Coke’s monitoring records, NEIC observed that the following dates on which monitoring took place were missing calibration records:

• January 12, 2011
• February 21, 2011
• March 24, 2011
• March 25, 2011
• July 7, 2010
</td></tr>
<tr><td>11.</td><td>40 CFR § 61.247(b) A report shall be submitted to the Administrator semiannually starting 6 months after the initial report required in paragraph (a) of this section, that includes the following information:...

(2) For each month during the semiannual reporting period, (i) Number of valves for which leaks were detected…(iii) Number of pumps for which leaks were detected...(v) Number of compressors for which leaks were detected…</td><td>After review of the facility’s semiannual reports, Walter Coke does not include the number of leaking valves, pumps, and compressors in its semiannual reports to JCDH. The second 2008 semiannual report and the first 2009 semiannual report only list the total number of components monitored.

The second 2009 semiannual report and first 2010 semiannual report do not list the number of valves leaking and do not categorize each type of component for each month during the semiannual reporting period. The second 2010 semiannual report and first 2011 semiannual reports include total valves monitored, but do not list out the type of components for each month during the semiannual reporting period.</td></tr>
<tr><td></td><td colspan="2">AREAS OF CONCERN – CAA</td></tr>
<tr><td>A.</td><td></td><td>On Thursday, September 8 and Friday, September 9, 2011, using a TVA, NEIC inspectors observed the following 27 elevated readings:

1. Flange on top of light-oil storage tank, tag 753 –650 ppm
2. Flange on top of light-oil storage tank, tag 755 – 1,000 ppm
3. Valve second from bottom of tank, tag 741 – 950 ppm
4. PRD, light-oil storage tank area, tag 740 – 2.00%
5. Explosion vent, light-oil storage tank area, tag 738 – 6,000 ppm
6. PRD, light-oil storage tank area, tag 743 – flameout
7. Explosion vent, light-oil storage tank area, tag 853 – 600 ppm
8. Inspection hatch (small manway), top of muck decanter/top decanter, tag 65 – 2.00%
9. Inspection hatch (small manway), top of muck decanter/top decanter, near tag 580 – 600 ppm
10. First flange, top of muck decanter/top decanter, tag 580 – 1,200 ppm</td></tr>
</table>

<table>
<tr><th>#</th><th>Regulatory Citation</th><th>Findings</th></tr>
<tr><td></td><td></td><td>11. Second flange, top of muck decanter/top decanter, tag 580 – 1.50%
12. Final cooler drain, no tag – 800 ppm
13. PRD on top of T-12 wash oil decanter, no tag – 6,000 ppm
14. Flange on compressor housing, exhauster building, tag 34 – 1.25%
15. Flange on compressor housing, exhauster building, no tag – 2.40%
16. Compressor seal leaking, tag 214 – 3.00%
17. Compressor seal leaking, tag 213 – 3.50%
18. Valve, final cooler area, tag 362 – 517 ppm
19. Explosion vent, top of weak liquor tanks, tag 28 – 615 ppm
20. PRD, top of weak liquor tanks, tag 30 – 800 ppm
21. PRD on top of light oil storage tanks, tag 747 – 4.00%
22. Explosion vent, top of light oil storage tanks, near tag 751 – 1,900 ppm
23. Exhauster #2 seal, tag 830 – 5,500 ppm
24. Valve (second to left) on top of tar storage tanks, tag 245 – 1,200 ppm
25. PRD top of tar storage tanks, tag 244 – 3,200 ppm
26. PRD on top of enriched tar decanter – 6,000 ppm
27. PRD top of final decanter, tag 37 – 640 ppm</td></tr>
<tr><td>B.</td><td></td><td>During the on-site inspection, NEIC inspectors monitored a total of 546 components and observed 27 elevated readings, for a leak rate of approximately 4.9%.

NEIC calculated leak rates based on the total number of components monitored and number of leaking components reported by Walter Coke in its semiannual reports to JCDH.

<table>
<tr><th>Semiannual Period</th><th>Total Components Monitored</th><th>Number of Leaking Components</th><th>NEIC-Calculated Walter Coke Leak Rate</th></tr>
<tr><td>Jul – Dec 2008</td><td>51,924</td><td>140</td><td>0.27%</td></tr>
<tr><td>Jan – Jun 2009</td><td>25,269</td><td>93</td><td>0.37%</td></tr>
<tr><td>Jul – Dec 2009</td><td>26,757</td><td>75</td><td>0.28%</td></tr>
<tr><td>Jan – Jun 2010</td><td>26,401</td><td>69</td><td>0.26%</td></tr>
<tr><td>Jul – Dec 2010</td><td>26,160</td><td>38</td><td>0.15%</td></tr>
<tr><td>Jan – Jun 2011</td><td>25,792</td><td>27</td><td>0.10%</td></tr>
</table>

The leak rate based on NEIC monitoring is significantly greater than the leak rates calculated by NEIC based on Walter Coke’s monitoring data. It appears that Walter Coke is potentially administering the requirements of Method 21 improperly.

NEIC also observed that the total number of components monitored by Walter Coke decreased from 51,924 in the 2008 second semiannual report to 25,269 components in 2009 first semiannual report. It is unclear what caused the decrease in components being monitored.</td></tr>
<tr><td>C.</td><td>40 CFR § 61.242-4 (b)(2) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to</td><td>While conducting leak monitoring on September 8, 2011, NEIC inspectors witnessed a pressure release (due to sound and odor) on the top of one of the light-oil storage tanks. There does not seem to be an alarm or an indicator installed on the PRDs in benzene service that would alert Walter Coke personnel</td></tr>
</table>

#	Regulatory Citation	Findings
	confirm the condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background…	when a pressure release has occurred. Without such an indicator, it is difficult (if not impossible) to know when a pressure release has occurred and ensure that PRDs are operating with no detectable emissions within 5 calendar days of a pressure release.
D.		It appears that the LDAR master equipment list is not accurate. In addition to the observation described in finding 5, additional examples are the following: Based on review of components monitored by NEIC during the on-site inspection and Walter Coke's equipment log, it appears that NEIC monitored approximately 47 components that were labeled as "Difficult to Monitor," which is identified in Walter Coke's master equipment list using a "^" symbol. According to discussions with Walter Coke and Walter Coke's Method 21 monitoring contractor, Direct Environmental Services, components that require elevating monitoring personnel more than 3 meters above a support surface are considered to be "Difficult to Monitor." During the on-site inspection, NEIC personnel did not monitor any equipment that was elevated more than 3 meters above a support surface. NEIC inspectors also attempted to compare the number of components associated with each tag observed in the field to the number of components listed in the LDAR master equipment list. The number of components and/or the descriptions in the master equipment list did not always match with observations in the field.
E.	**40 CFR § 61.138(e)(1)** – *An owner of operator of any source to which this subpart applies shall submit a statement in writing notifying the Administrator that the requirements of this subpart and 40 CFR 61, subpart V, have been implemented.*	During the on-site inspection, NEIC requested to review the implementation statements for 40 CFR 61 Subparts L and V. Walter Coke representative Charles Jones stated that the implementation statements were located in the Walter Coke archives. However, in an email dated November 3, 2011, Walter Coke indicated that the implementation statements could not be located.
F.		The submarine tank does not appear to meet the definition of process vessel, storage tank, tar-intercepting sump, or light-oil sump in Subpart L and, therefore, is not subject to the control requirements in Subpart L. However, the vessel is gas-blanketed, and Walter Coke considers this vessel to be controlled. There is an opening in the top of the submarine tank where drains from other process vessels can enter the vessel. The opening is exposed to the atmosphere. According to Walter Coke personnel, the opening is a pipe that extends below the liquid level of the submarine tank, and while the surface area of the opening within the submarine tank is exposed to the atmosphere, the majority of the liquid surface area in the tank is not. The submarine tank does not appear to meet the control requirements in 40 CFR § 61.343. If Walter Coke's TAB quantity is greater than 10 Mg, this vessel should be considered uncontrolled and the benzene in the streams entering this vessel should be counted against the allowable uncontrolled benzene as described in 40 CFR § 61.342(c), (d), or (e).
G.		Walter Coke likely underestimated the benzene concentration in the light-oil muck clean-up material listed as a benzene waste stream in the facility's TAB calculations.

#	Regulatory Citation	Findings
		Walter Coke's TAB calculations include light-oil muck cleanup material that was sent off-site for disposal. Walter Coke stated in its TAB report that it "conservatively" estimated that benzene concentration in the material was 330 ppm because the material fouled the analytical device and was unable to be analyzed. NEIC collected samples of tar from two locations, one of which was from the muck recovery tank that would most likely represent a similar benzene concentration to that of the spilled light oil muck clean-up material. The average benzene concentration in the tar from the muck recovery tank samples was 3,852 mg/Kg (same as ppm by weight). The benzene quantity from this waste stream should likely be an order of magnitude greater than what was calculated by Walter Coke. The TAB contribution from the 6.52 tons of spilled material should be closer to 0.33 Mg, rather than 0.033 Mg for 2007.
H.		Estimated flow rates for the ammonia still influent and effluent provided by Walter Coke in a presentation of the facility's by-product system do not appear to be accurate. The ammonia still influent is estimated to be 180 gallons per minute (gpm), and the effluent is estimated to be 125 gpm. Because both caustic and steam are added to the ammonia still, the effluent would be expected to be a higher flow rate—or close to the same flow rate—as the influent.
	RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)	
	AREAS OF POTENTIAL NONCOMPLIANCE – RCRA	
1.	**Alabama 335-14-11-.02(5)(e) [40 CFR § 273.14(e)]** – *Each lamp, or a container or package in which the lamps are contained, must be labeled or marked clearly with any one of the following phrases: "Universal Waste Lamp(s)", or "Waste Lamp(s)", or "Used Lamp(s)".*	On September 8, 2011, NEIC observed the wooden box holding used fluorescent light bulbs was not labeled or marked. Walter Coke personnel marked the box on September 9, 2011, with the words "Waste Florescent Lamps."
2.	**Alabama 335-14-11-.02(6)(c)(1) [40 CFR § 273.15(c)(1)]** – *A small quantity handler of universal waste who accumulates universal waste must be able to demonstrate the length of time that the universal waste has been accumulated from the date it becomes a waste or is received. The handler may make this demonstration by:* *1. Placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste or was received…*	On September 8, 2011, NEIC observed the wooden box holding used fluorescent light bulbs was not dated with the earliest date that universal waste was placed in the container. Walter Coke personnel marked the box on September 9, 2011, with the date of "8/29/11." The date was determined based on when the new wooden box was placed in the area to collect used bulbs.
3.	**Alabama 335-14-3-.03(5)(a)(3) [No federal equivalent]** – *While being accumulated on-site each container and tank is labeled or*	On September 8, 2011, NEIC observed three large cardboard boxes that were labeled "Hazardous Waste." These labels did not include the EPA hazardous waste number. Walter Coke personnel added the EPA hazardous waste number of D001 while inspectors were still in the less-than-90-day accumulation area.

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	marked clearly with the words, "Hazardous Waste" and the EPA hazardous waste number	The boxes contained sealant that was no longer useable.
4.	**Alabama 335-14-6-.02(5)(c), as referenced by 335-14-3-.03(5)(a)(4) [No federal equivalent]** – *Unless exempt under 335-14-6-.02(5)(a)1. and (a)2., a sign with the legend, "Danger--Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the workplace and the area surrounding the facility, and must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger--Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.*	The less-than-90-day accumulation area consists of a concrete pad located adjacent to the clinic. On September 8, 2011, NEIC observed two signs were located in this area with the following words "Caution Hazardous Waste Storage Restricted Area." One sign was posted on the wall of clinic facing east; the second sign was posted on the wall of a small concrete building facing west. There were no signs visible when approaching the less-than-90-day accumulation area from north or south. Walter Coke personnel posted signs on vertical posts at the entrances before the end of the NEIC on-site inspection.
5.	**Alabama 335-14-3-.03(5)(a)(3) [40 CFR § 262.34(a)(3)]** – *While being accumulated on-site each container and tank is labeled or marked clearly with the words, "Hazardous Waste" and the EPA hazardous waste number*	On September 8, 2011, NEIC observed three drums of material pending analytical results were not labeled "Hazardous Waste" during accumulation. The pending analysis label stated that the drums contained "Unused Water Treatment Solution."
6.	**Alabama 335-14-6-.02(7)(c), as referenced by 335-14-3-.03(5)(a)(4) [40 CFR § 265.16(c), as referenced by 40 CFR § 262.34(a)(4)]** – *Facility personnel must take part in an annual review of the initial training required in 335-14-6-.02(7)(a).*	Documentation provided by Walter Coke shows the starting dates for employees required to take the RCRA training, and for each employee what training was taken and when the training was taken. Documentation has only been included for employees who have missed an annual review. For 2008, two employees and for 2009 three employees did not take part in the annual review of the required training.
7.	**Alabama 335-14-8-.01(1)(c)** – *AHWMMA requires a permit for the "treatment", "storage", and "disposal" of any "hazardous waste" as identified or listed in 335-14-2.* **40 CFR § 270.1(c)** – *RCRA requires a permit for the "treatment," "storage," and "disposal" of any "hazardous waste" as*	NEIC reviewed electronic data provided by the facility for sampling and analysis conducted in the wastewater collection and treatment system. The facility provided an email response subsequent to the inspection clarifying where certain sampling locations were physically located in the plant. According to the email response from Charles Jones, the Old Pipe is the discharge pipe into the emergency basin. On two occasions, October 9 and 10, 2010, the sample collected at the Old Pipe exhibited a pH over 12.5 (October 9 – pH of 13 [on the 3-to-11 shift] and 12.9 [on the 11-to-7 shift] and October 10 – pH of 12.5 [on the 7-to-3 shift]). Solid wastes exhibiting a pH of greater than or equal to 12.5 is a characteristic hazardous waste for corrosivity (EPA hazardous waste No. D002). Walter Coke is operating the emergency basin without interim status or a RCRA permit, and, on at least two occasions, hazardous

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	identified or listed in 40 CFR part 261.	waste was discharged into the basin. Facility personnel indicated that this surface impoundment is included in the ongoing RCRA corrective action effort at the site.
	AREA OF CONCERN – RCRA	
A.		NEIC reviewed groundwater monitoring data and interviewed onsite personnel regarding the handling and treatment of groundwater from the former Walter Coke Arichem facility in Ariton, Alabama. Walter Coke is discharging groundwater into the on-site emergency basin from the Arichem facility that contains constituents listed in the RCRA hazardous waste characteristic for toxicity. Walter Coke is monitoring and treating groundwater at the Arichem facility. The Arichem facility produced flame retardants when it was an operating plant. A constituent of concern contained in the groundwater is 1,4-dichlorobenzene, which is a RCRA TCLP chemical with a regulatory level of 7.5 mg/L. NEIC reviewed the May 2011 Semiannual Event Summary for the groundwater monitoring conducted by CH2M Hill. The report contains a summary of historical groundwater quality data in Appendix B. There have been times when the analytical results for groundwater sampled from various wells indicate the presence of more 1,4-dichlorobenzene than the TCLP limit of 7.5 mg/L. The groundwater is discharged directly into the emergency basin at the Biological Treatment Facility. One truck a month of aggregated groundwater is transported from the Arichem facility to Walter Coke. The only analytical tests performed on the groundwater in the truck brought to Walter Coke are for chemical oxygen demand and pH. No determination is made as to whether the groundwater being discharged into the emergency basin exhibits the RCRA hazardous waste characteristic of toxicity for 1,4-dichlorobenzene.